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ABSTRACT

In an examination of ways maternal training can influence children's language use, 20 mother-child dyads (10 with Down's Syndrome children and 10 with nonhandicapped children) were videotaped during play sessions. Training centered on recognition and response to child intents, techniques for mapping language onto the content which the child is observing, and techniques to promote child request, response, and label behaviors. Analysis of pre- and post-training videotaped interactions indicated differences in maternal speech and response style addressed to the two groups. Data suggested that differences in response styles may be attributable to differences in child responsivity, as Down's Ss complied less, looked less, answered less, and repeated less than their nonhandicapped peers. Questions were raised about the effects of mothers' didactic strategies with Down's Syndrome Children. (CL)

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THE EFFECTS OF MATERNAL TRAINING ON LANGUAGE USE

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THE EFFECTS OF MATERNAL TRAINING ON LANGUAGE USE

Over a decade of research has indicated that mothers tune their speech to their children's linguistic competencies. (Snow, 1972; Broen, 1972; Philips, 1973; De Paulo and Bonvillian, 1975; Longhurst and Stepanich, 1975; Snow, 1977). While early research was primarily concerned with identifying the parameters of adult to child speech, later studies focused on the teaching value of simplified speech. These studies indicated that certain maternal language features appear to be influential in teaching children the use of the language. For example, language learning children provided by their mothers with a high amount of recasted material (defined as the same semantic material presented through the use of different syntactical forms) have been found to perform better than controls on measures of sentence imitation and predicate complexity. (Nelson, Carskuddon, and Bonvillian, 1973). Likewise, high proportions of expansions and repetitions (Newport, Gleitman, and Gleitman, 1978; Cross, 1978) as well as a proportionately high use of maternal extensions (defined as the provision of additional semantic information) Newport et al. 1978) have been found to accelerate the rate of child linguistic growth.

If it is the case that the language environment plays a role in the child's language learning process, it is imperative that children who are developmentally delayed also receive access to a facilitative language environment. In recent years, there has been some controversy over the appropriateness of the language environment provided for young mentally retarded children. Studies matching mentally handicapped and non-handicapped children on chronological age have led to the conclusion that the two groups of children are not provided with similar language information. (Buium, Rynders, and Turnure, 1974; Weistuch, 1979; Kogan, Weinberger, and Bobbitt, 1974; Seitz, 1976; Marshall, Goldstein, and Hegrenes, 1973). These findings have led to the speculation that differences in maternal language usage might contribute to the handicapped child's linguistic delay. (Buium et al. 1974).

In a watershed study challenging this position, Rondal (1976) argued that if mothers do speak to their children's level of language competency, age matching does not appropriately control for the developmental differences between same-age handicapped and non-handicapped peers. He matched Down's Syndrome and non-handicapped children on MLU and subsequently found no differences in the complexity of maternal syntax used.

This finding, however, is still cause for further controversy. The language acquisition literature has indicated that differences in syntactical adustments do not affect the rate of child language growth. Rather, elements of the mother's response to the child (e.g. the expansions, extensions, and repetitions alluded to earlier) have been found to affect child language growth rate.

Studies designed to compare the way in which parents of same level handicapped and non-handicapped children use these facilitative response features have indicated some differences in usage. Newhoff, Silverman, and Millett (1980) found that fathers of non-handicapped children used more semantic extensions with their children than did fathers of language disordered children at comparable language levels. Macpherson and Olson (1980), also examining the response styles used by parents in interaction with language disordered children similarly found that mothers of language handicapped children used significantly less combinations of expansions, extensions, and repetitions than did mother's speaking to children who were functioning normally in the language sphere.

With these differences in mind, the following study was designed to examine:

(a) whether mothers initiate and respond to language differently as a function of handicapping condition when children are equated for language level.

(b) whether differences are dependent on child verbal behavior.

(c) whether teaching mothers about facilitative language strategies affects their language use--particularly in the case of mothers having children with Down's Syndrome.

(d) whether teaching mothers to utilize a series of language facilitation strategies increases their children's language production--particularly the language production of children with Down's Syndrome.

Method

Subject Selection: Ten non-handicapped children were matched to ten children diagnosed as having Down's Syndrome on mean-length-of-utterance 1.0-1.5. The mean age of the non-handicapped children was 22.1 months and of the handicapped children was 42.1 months.

All mothers were English-speaking and had no more than a high school education. Additionally, all showed interest in attending a series of 8 language facilitation workshops. They were told that the study had two purposes:

(1) to examine whether mothers speak differently to handicapped than to non-handicapped children.

(2) to examine whether exposing mothers to language workshops would help them to help their children communicate more effectively.

Procedure: Each mother and child participating in the study was videotaped in a laboratory playroom through a one-way mirror. The playroom contained a variety of appropriate pre-school aged toys.

For each dyad, twelve minutes of tape were transcribed and coded in accordance with an observational system designed to code language interactively. For each member of the dialogue (adult and child) categories for initiations of interactions as well as categories for responses to the other's initiations were developed. Briefly, the maternal initiation scale examined maternal directive language, referential language, and interrogative language. The child initiation scale examined children's labeling, requesting, protesting and informing behaviors. For complete mother and child codes, please refer to tables 1A (maternal initiations and child responses) and 1B (child initiations and maternal responses).

Insert Table 1 About Here

One month after completion of the baseline testing, half of each group of mothers (non-handicapped and Down's Syndrome) began to receive intervention once a week for two hours. Each week, the investigator met with the mothers for one hour and with the mothers grouped with their children

for one hour. Discussions centered around the recognition of and response to child intents, techniques for mapping language onto the content which the child is observing, and techniques for getting the child to request, to respond, and to use labels.

After completion of the eight week intervention period, all mothers and children (those who had participated in the intervention as well as those who had not) were again retaped in the free-play situation. Post-test data was transcribed and coded in accordance with the pretest procedure.

RESULTS

Five hypotheses were tested. For the sake of clarity, each will be discussed separately.

HYPOTHESIS 1: The initiation and response cues utilized by mothers of Down's Syndrome and non-handicapped children matched for MLU are significantly different.

Regarding initiation behaviors, mothers of Down's Syndrome children were found to be more directive--issuing more commands (40% vs 27%) and more suggestions (40% vs 31%).

Differences in maternal response behaviors are depicted in table 2. Note that responsively mothers of

Insert Table 2 About Here

Down's Syndrome children appear, again, to be more directive. Note that they more often prompt for adequate answers. Additionally, they more often verbally guide when their children are attempting to comply and more often reinforce rather than extend their expectations once their children have complied.

In contrast, mothers of non-handicapped children appear to more often follow their children's leads. They more often tend to repeat when their children request that they do so and they more often extend their demands once their children have complied.

HYPOTHESIS 2: The communicative competencies of typical and Down's Syndrome children matched for MLU differ significantly.

Although children's initiations were not found to differ significantly across the two groups, children with Down's Syndrome were found to be less responsive than their non-handicapped peers. Observe the means presented in table 3.

Insert Table 3 About Here

Note that the children with a handicapping condition complied less with both commands and suggestions, looked less in response to attentionals, answered wh requests/labels less often and repeated maternal contextual references and labels

less often as well. Thus, while MLU might be an appropriate index of children's initiation behaviors, it might not be an effective indicator of children's response abilities.

HYPOTHESIS 3: Mothers of both groups of children exposed to the discourse-promoting intervention will increase their use of initiation and response cues significantly more than mothers not so exposed.

Repeated measures analyses were performed on pre and post intervention use of each of the maternal initiation and response variables. Significant differences in the performance of intervention and control groups over time were obtained in one initiation and two response domains. These differences are presented in table 4. Note that

Insert Table 4 About Here

mothers who received intervention increased their rate of contextual references. The importance of referring to on-going actions and events was stressed throughout the intervention sessions. Apparently, mothers undergoing the language training sessions did become more conscious of mapping language onto the context.

Mothers who had undergone the intervention also demonstrated higher rates of expansion and extension use than did controls. Apparently, they became more conscious of following their children's leads--elaborating both syntactically and semantically upon their children's utterances.

HYPOTHESIS 4: Mothers of Down's Syndrome children will benefit more from the intervention than will mothers of non-handicapped children.

Although it was hoped that this would be the case the data did not support the hypothesis. There were some trends indicating that mothers of non-handicapped children benefitted slightly more than mothers of handicapped children. These trends are presented in table 5.

Insert Table 5 About Here

Note that although both groups of mothers who received intervention increased their rate of use of contextual references when compared to controls, mothers of non-handicapped children increased usage somewhat more. Additionally, while both groups of intervention mothers demonstrated increased extension use when contrasted with their control peers, there was a trend for mothers of typical children to increase their rate of extending upon their children's repetitions more.

HYPOTHESIS 5: Intervention will appreciably affect child language usage.

The intervention period was an extremely short one, so dramatic changes in child language production were not expected. However, observe the pre and post test MLU means

presented in table 6. Although analyses failed to indicate

Insert Table 6 About Here

a significant difference in growth between non-handicapped and Down's Syndrome children who received intervention, the raw means suggest that while intervention appreciably affected the MLU of non-handicapped children, it did not affect the MLU of handicapped children.

CONCLUSIONS AND SUMMARY

Several findings emerged from this study. First, this study, like the studies presented by Newhoff, Silverman, and Millett (1980) and Macpherson and Olson (1980) indicates that elements of the maternal speech addressed to handicapped and typical children equated for MLU are not the same. While none of these studies take issue with Rondal's (1976) finding that maternal initiation behaviors are bounded by child MLU irrespective of the presence of a handicapping condition, they all add another dimension to the finding--the dimension being that response styles used in interaction with handicapped children differ considerably from the response styles used in interaction with typical children.

Why the differences in style? More research is needed before this question can be answered conclusively,

but the data gathered in this study appear to indicate that the differences in maternal response styles might be attributable to the differences in child responsivity. In this study, Down's Syndrome children were found to comply less, look less, answer less and repeat less than their non-handicapped peers matched for MLU. It is, perhaps, their lowered level of responsivity which accounts for their mothers being more didactic. When language is not occurring spontaneously, it makes sense that mothers might try very hard to elicit word production and to reinforce it once it did occur.

Is the didactic strategy an effective one? It is difficult to say. The evidence to date on typical child language acquisition indicates that, usually, children learn language more rapidly when mothers recast, extend upon, and expand upon their children's speech. While there is some evidence in this study also to support that this is so when children are non-handicapped, there is no evidence in this study to indicate that this is so for Down's Syndrome children. Of course, it must be kept in mind that the intervention period provided for purposes of this experiment was a very short one. Given a longer period of time, intervention might have promoted change. However, the research on the effects of maternal speech on the language acquisition of non-handicapped children has been conducted with children who have already begun to be somewhat participatory and

engaging. It is possible that, if children who are handicapped, are less responsive to their mothers, it is because they are having difficulty processing the language that has already been advanced to them. If this is the case, it might not be in the educational interests of the child to provide a richer language environment.

Yet, it is equally possible that the mother of the Down's Syndrome child's didactic style might contribute to her child's inability to participate in dialogue. Evidence indicates that the mother plays an important role in teaching her child the early pragmatic skills of turn-taking (Bruner, 1975; Messer, 1976) and anchoring context to topic. (Bloom and Lahey, 1978). Through their more didactic teaching style, it is possible that mothers of Down's Syndrome children preclude their children from the structure of dialogue. Intent on teaching their children how to respond correctly, they might miss certain child cues and thus fail to take advantage of the full range of teaching opportunities. In fact, some of the results obtained in this study support this notion. For example, mothers of Down's Syndrome children were found to respond less often to their children's repetition requests. They were also more often found to ignore their children's inadequate answers. In these two instances then, mothers, by modeling, are failing to teach their children the importance of responsiveness.

Additional research on how styles of maternal speech affect the rate and cause of language acquisition of handicapped children needs to be conducted before maximally effective interventions can be designed for handicapped children in interaction with their mothers. It would be particularly interesting to examine the effects of a longer maternal based intervention of the type described in this study on the language acquisition of handicapped children.

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TABLE 1A

	Maternal Speech Initiations	Child Responses
I.	Commands	complies complies inadequately doesn't comply
II.	Directions/Suggestions	complies complies inadequately
III.	Attentionals	looks doesn't look
IV.	Wh request/information	answers answers inadequately doesn't answer
V.	Wh request/labels	answers answers inadequately doesn't answer
VI.	Binary requests/information	answers answers inadequately doesn't answer
VII.	Descriptions of context	doesn't respond responds inadequately repeats responds contingently
VIII.	Describes M's act	doesn't respond responds inadequately repeats responds contingently
IX.	Describes C's act	doesn't respond responds inadequately repeats responds contingently
X.	Labels	doesn't respond responds inadequately repeats responds contingently

TABLE 1B

	Child Speech Initiations	Maternal Responses
1.	C requests action	M acknowledges M doesn't acknowledge
2.	C requests answer	M answers M doesn't answer
3.	C protests	M acknowledges M doesn't acknowledge
4.	C labels	M acknowledges M ignores M expands M extends M reinforces M corrects
5.	C informs	M acknowledges M ignores M expands M extends M reinforces M corrects
6.	C answers	M acknowledges M doesn't acknowledge M expands M extends M reinforces M corrects M negates
7.	C complies	M guides M reinforces M describes M extends M acknowledges M ignores
8.	C requests repetition	M repeats M doesn't repeat

TABLE 2

Maternal Responses: Differences for Mothers of Handicapped vs. Non-handicapped Children

Domain	$\bar{x}$ Mothers of H.	$\bar{x}$ Mothers of NH	F	df	p
clarification requests/ ch. informings	4%	13%	5.12	1,18	.04
response to children's repetition requests	33%	87%	5.23	1,8	.05
extension of correct compliances	18%	32%	6.82	1,18	.02
prompting for answers	10%	.006%	4.71	1,15	.05
guiding of compliance	23%	14%	3.12	1,18	.09
reinforcement for compliance	19%	4%	13.08	1,18	.002

TABLE 3

Child Responses: Differences for Handicapped vs. Non-handicapped Children

Domain	$\bar{x}$ H	$\bar{x}$ NH	F	df	p
compliance/commands	53%	65%	3.84	1,18	.07
failure to comply/ suggestions	66%	52%	6.50	1,18	.02
looking/attentionals	57%	76%	3.88	1,18	.06
failure to answer/wh requests/labels	61%	34%	4.34	1,18	.05
repetition/contextual reference	6%	16%	4.63	1,18	.05
repetition/labels	7%	34%	5.39	1,18	.03

TABLE 4

DIFFERENCES IN LANGUAGE USAGE: INTERVENTION VS. CONTROL GROUPS

Domain	$\bar{x}$ Intervention pre → post	$\bar{x}$ Control pre → post	F	df	p<
contextual references	6% → 12%	8% → 7%	14.99	16, 1	.001
expansions	2.3 → 4.0	3.1 → 2.1	4.60	16, 1	.05
semantic extensions	9 → 24	11 → 14	4.44	16, 1	.05

TABLE 5

DIFFERENCES IN LANGUAGE USAGE: MOTHERS OF N.H. VS. D.S. CHILDREN WHO RECEIVED INTERVENTION

Domain	Intervention N.H.	Intervention D.S.	F	df	p<
contextual references	5% → 15%	6% → 9%	2.57	16, 1	.13
extension of repetitions	9% → 33%	10% → 8%	3.51	14, 1	.08